

28-29-300. Definitions. (a) For the purposes of K.A.R. 28-29-300 through K.A.R. ~~28-29-325~~
28-29-336, the following definitions shall apply:

(1) "C&D" means construction and demolition.

(2) "C&D contact water" means liquid, consisting primarily of precipitation, that has infiltrated through the C&D waste or has been in contact with the C&D waste for any period of time. This term shall include all runoff from the active area of the C&D landfill and all liquid derived from the C&D waste.

(3) "C&D landfill" shall have the meaning assigned to "construction and demolition landfill" in K.S.A. 65-3402, and amendments thereto.

(4) "C&D waste" shall have the meaning assigned to "construction and demolition waste" in K.S.A. 65-3402, and amendments thereto. For the purposes of this definition, the following clarifications shall apply:

(A) "Furniture and appliances" shall not include computer monitors and other computer components, televisions, videocassette recorders, stereos, and similar waste electronics.

(B) "Treated wood" shall include wood treated with any of the following:

(i) Creosote;

(ii) oil-borne preservatives, including pentachlorophenol and copper naphthenate;

(iii) waterborne preservatives, including chromated copper arsenate (CCA), ammoniacal copper zinc arsenate (ACZA), and ammoniacal copper quaternary compound (ACQ); or

(iv) any other chemical that poses ~~risks~~ a risk to human health ~~and or safety~~ or the environment that ~~are~~ is similar to any of the risks posed by the chemicals specified in paragraphs (a)(4)(B)(i) through (iii) ~~of this subsection~~.

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(C) "Untreated wood" shall include the following, if the wood has not been treated with any of the chemicals listed in paragraphs (a)(4)(B)(i) through (iv) of this regulation:

- (i) Coated wood, including wood that has been painted, stained, or varnished; and
- (ii) engineered wood, including plywood, laminated wood, oriented-strand board, and particle board.

(5) "Habitable structure" means any structure that is occupied or maintained in a condition that allows it to be occupied, including dwellings, churches, schools, care facilities, public buildings, office buildings, commercial buildings, and industrial buildings.

(6) "Hazardous waste" means material determined to be hazardous waste as specified in K.A.R. 28-31-4 28-31-261.

~~(6)~~ (7) "Household hazardous waste" shall have the meaning specified in K.A.R. 28-29-1100.

~~(7)~~ (8) "Non-C&D waste" means all solid waste that is not specifically defined as construction and demolition waste in K.S.A. 65-3402, and amendments thereto. Non-C&D waste shall include hazardous waste and household hazardous waste.

(9) "Used and unused disposal capacity of the C&D landfill" shall mean the sum of the following:

- (1) The volume of waste that has been placed in the C&D landfill;
- (2) the volume of C&D and other putrescible waste that has been placed in all areas contiguous to the C&D landfill; and
- (3) the unused volume of the C&D landfill, including the following:
 - (A) The unused volume of each disposal unit that has been authorized for disposal by the secretary; and

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(B) the volume of all areas that have not been authorized for disposal by the secretary but could be authorized for disposal under the current permit.

(b) If a requirement in K.A.R. 28-29-300 through K.A.R. ~~28-29-325~~ 28-29-336 conflicts with a requirement of K.A.R. 28-29-12 or K.A.R. 28-29-23, the requirement in K.A.R. 28-29-300 through K.A.R. ~~28-29-325~~ 28-29-336 shall control.

~~This regulation shall take effect 90 days after publication in the Kansas register.~~ (Authorized by and implementing K.S.A. 65-3406; effective March 17, 2004; amended P-_____.)

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28-29-330. Control of hazardous and explosive gases at C&D landfills; applicability of additional requirements. (a) Applicability of additional cover requirement. The additional cover requirement of K.A.R. 28-29-333(a) shall apply to the owner or operator of each disposal unit that is located in a C&D landfill that meets all of the following conditions:

(1) Location. Precipitation in all parts of the county in which the C&D landfill is located averages more than 25 inches per year. The following counties and any county located east of these counties shall be designated as meeting this condition: Jewell, Mitchell, Lincoln, Ellsworth, Rice, Reno, Kingman, and Harper.

(2) Capacity. The used and unused disposal capacity of the C&D landfill is more than 100,000 cubic yards.

(3) Hydrogeology. The C&D landfill meets one or more of the following conditions, as evaluated and documented by a professional engineer or licensed geologist:

(A) The C&D landfill is located within a 100-year floodplain.

(B) The highest predicted groundwater elevation under the C&D landfill is less than five feet below the lowest point of the C&D landfill.

(C) The permeability of the natural soils or the constructed soil liner or the natural geologic formation under the C&D landfill is 1×10^{-7} centimeters per second or less, including quarry landfills with competent shale bases, unless the owner or operator demonstrates to the department that design and operational practices ensure that C&D contact water will exit the C&D landfill by gravity flow.

(b) Applicability of additional design and C&D contact water management requirements. The additional design requirements of K.A.R. 28-29-332 and the C&D contact water

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management requirements of K.A.R. 28-29-333(b) shall apply to the owner or operator of each C&D disposal unit that meets both of the following conditions:

(1) The C&D landfill in which the disposal unit is located meets the location, capacity, and hydrogeologic conditions listed in paragraphs (a)(1), (2), and (3); and

(2) the design plan for the disposal unit meets one of the following conditions:

(A) The plan is submitted to the department on or after July 1, 2013; or

(B) the plan is submitted to the department after the effective date of this regulation and before July 1, 2013, and the capacity of the disposal unit is more than 50,000 cubic yards.

(c) Applicability of gas monitoring requirements. The monitoring requirements of K.A.R. 28-29-335 shall apply to the owner or operator of each C&D landfill that meets both of the following conditions:

(1) The C&D landfill meets the location, capacity, and hydrogeologic conditions listed in paragraphs (a)(1), (2), and (3).

(2) More than 50,000 tons of waste have been placed in the C&D landfill and contiguous areas since July 1, 1998.

(d) Applicability of postclosure financial assurance. The owner or operator of each C&D landfill that is required to manage C&D contact water or monitor gas levels during the postclosure period shall provide financial assurance according to K.A.R. 28-29-2101.

(e) Applicability of corrective action requirements. The corrective action requirements of K.A.R. 28-29-336 shall apply to the owner or operator of each C&D landfill. (Authorized by and implementing K.S.A. 65-3406; effective P-_____.)

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28-29-331. Control of hazardous and explosive gases at C&D landfills; documentation of conditions used to determine applicability. Each person that submits an application for a new C&D landfill and the owner or operator of each existing C&D landfill shall submit to the department documentation of the conditions specified in K.A.R. 28-29-330, according to the following requirements:

(a) Required documentation.

(1) If the proposed or existing C&D landfill meets the location conditions specified in K.A.R. 28-29-330(a)(1), the applicant or the owner or operator shall submit documentation of the used and unused disposal capacity of the C&D landfill.

(2) If the proposed or existing C&D landfill meets the location and capacity conditions specified in K.A.R. 28-29-330(a)(1) and (2), the applicant or the owner or operator shall submit documentation of the hydrogeologic conditions specified in K.A.R. 28-29-330(a)(3). For the purposes of determining the applicability of K.A.R. 28-29-332 through 28-29-335, if the proposed or existing C&D landfill meets one of the hydrogeologic conditions listed in K.A.R. 28-29-330(a)(3), the applicant or the owner or operator shall not be required to submit documentation of the other hydrogeologic conditions.

(3) If the proposed or existing C&D landfill meets the location, capacity, and hydrogeologic conditions specified in K.A.R. 28-29-330(a)(1) through (3), the applicant or the owner or operator shall submit documentation of the amount of waste that has been placed in the C&D landfill and in contiguous areas since July 1, 1998.

(b) Schedule for submission of documentation.

(1) Each applicant for a new C&D landfill permit shall include the documentation

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specified in subsection (a) with the permit application.

(2) The owner or operator of each C&D landfill for which a permit has been issued before the effective date of this regulation shall submit the documentation specified in subsection (a) no later than six months after the effective date of this regulation.

(3) Each owner or operator of a C&D landfill that submits an application for a permit modification to the department shall include the documentation specified in subsection (a) with the application if additional documentation is required.

(4) If the amount of waste disposed of in the C&D landfill and contiguous areas exceeds the 50,000-ton threshold specified in K.A.R. 28-29-330(c)(2), the owner or operator shall inform the department of this exceedance within one month of the date the threshold was exceeded.

(Authorized by and implementing K.S.A. 65-3406; effective P-_____.)

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28-29-332. Control of hazardous and explosive gases at C&D landfills; additional design requirements. The owner or operator of each C&D disposal unit that meets the conditions of K.A.R. 28-29-330 for determining the applicability of additional design requirements shall design and construct the disposal unit to meet the all of the following requirements:

(a) Standard design and construction requirements.

(1) The owner or operator shall construct the disposal unit using a construction quality assurance plan that has been approved by the secretary.

(2) The design shall prevent gas from the C&D landfill from migrating laterally off-site.

(3) The drainage layer shall meet the following specifications:

(A) Be constructed before any waste is placed in the disposal unit;

(B) overlay the base of the disposal unit;

(C) be at least three feet thick; and

(D) consist of sand, gravel, clean rubble, or other material with a hydraulic conductivity of 1×10^{-3} cm/sec or greater. Soil shall not be used to construct the drainage layer.

(4) One or more systems shall be installed to collect and monitor C&D contact water.

(5) One or more pumps shall be installed to remove C&D contact water from the drainage layer of each disposal unit.

(6) The final cover shall consist of the following layers:

(A) A low-permeability layer that is at least 18 inches thick and that has a permeability equal to or less than the permeability of the base of the C&D landfill; and

(B) a protective layer that is at least as thick as the maximum frost depth at the C&D

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landfill.

(b) Alternate designs. Alternate landfill designs that are at least as protective of human health, safety, and the environment as the standard design requirements may be approved by the secretary. Alternate landfill designs may be based on waste management procedures at the C&D landfill, including removal of gypsum-containing materials or more frequent placement of intermediate cover. (Authorized by and implementing K.S.A. 65-3406; effective

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28-29-333. Control of hazardous and explosive gases at C&D landfills; additional operating requirements. (a) Cover requirements. The owner or operator of each C&D disposal unit that meets the conditions of K.A.R. 28-29-330 for determining the applicability of additional cover requirements shall apply cover material that meets the requirements of K.A.R. 28-29-308(k)(2) through (4) at least once every week that waste is placed in the disposal unit.

(b) C&D contact water management requirements. The owner or operator of each C&D disposal unit that meets the conditions of K.A.R. 28-29-330 for determining the applicability of additional C&D contact water management requirements shall comply with all of the following requirements:

(1) Pump C&D contact water to maintain a depth of two feet or less in the drainage layer at all approved C&D contact water monitoring locations during the active life of the facility and during the closure and postclosure periods; and

(2) sample and analyze the C&D contact water according to the following requirements:

(A) Collect one sample no sooner than six months and not later than one year after the date waste was first placed in the disposal unit. If the concentration of total sulfates in the sample is greater than 500 mg/l, additional sampling may be required by the secretary;

(B) collect one sample within three months after the closure of the disposal unit has been approved by the secretary. The results of this analysis shall be evaluated by the secretary to determine management of the C&D contact water during the postclosure period;

(C) analyze each sample for the following parameters:

(i) Each of the constituents listed in appendix I in K.A.R. 28-29-113;

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- (ii) arsenic;
- (iii) cadmium;
- (iv) chromium;
- (v) five-day biochemical oxygen demand (BOD(5));
- (vi) lead;
- (vii) pH;
- (viii) sulfide;
- (ix) total iron;
- (x) total suspended solids; and
- (xi) volatile fatty acids; and

(D) have each analysis, except for time-sensitive parameters, performed and reported by a laboratory that has departmental certification, if this certification is available, for that analysis. Time-sensitive parameters, including pH, shall be conducted at the time of sampling if possible.

(c) Alternate operating procedures. Alternate operating procedures that are at least as protective of human health, safety, and the environment as the requirements of subsections (a) and (b) may be approved by the secretary. (Authorized by and implementing K.S.A. 65-3406; effective P-_____.)

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28-29-334. Control of hazardous and explosive gases at C&D landfills; monitoring system design and design plan. The owner or operator of each C&D landfill that meets the conditions of K.A.R. 28-29-330 for determining the applicability of gas monitoring requirements shall design and construct a gas monitoring system to meet the following requirements:

(a) Gas monitoring system design requirements.

(1) The owner or operator shall locate the gas monitoring probes as follows:

(A) On the facility property;

(B) no more than 25 feet from the property boundary of the facility;

(C) no more than 1,000 feet apart; and

(D) no more than 500 feet apart in areas where any habitable structure is located off-site and within 2,000 feet of the C&D landfill boundary.

(2) The owner or operator shall install gas monitoring probes that are designed to monitor the unsaturated soil and rock down to an elevation equal to the elevation of the bottom of the C&D landfill.

(3) One or more of the following may be approved by the secretary based on site-specific conditions:

(A) Alternate gas monitoring probe locations;

(B) alternate gas monitoring probe spacing; and

(C) alternate gas monitoring probe designs.

(b) Gas monitoring system design plan. The owner or operator shall develop a gas monitoring system design plan, which shall become part of the facility design plan upon

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approval by the secretary. The gas monitoring system design plan shall include the following information:

- (1) A description of the soils at the facility;
- (2) a description of the hydrogeology and topography of the facility property and the area extending one mile beyond the facility boundary;
- (3) an aerial photographic image of the facility and all structures within 2,000 feet of the facility boundary;
- (4) the results of all gas assessments that have already been performed;
- (5) a description of the monitoring system, including the spacing of the gas monitoring probes;
- (6) a plan sheet that shows the location of all of the gas monitoring probes;
- (7) a drawing detailing the typical gas monitoring probe design;
- (8) a drawing detailing the design depths and bottom elevations of each gas monitoring probe; and
- (9) boring logs that shall be used by the secretary to evaluate the effectiveness of the proposed gas monitoring system design. (Authorized by and implementing K.S.A. 65-3406; effective P-_____.)

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28-29-335. Control of hazardous and explosive gases at C&D landfills; monitoring and monitoring plan. The owner or operator of each C&D landfill that meets the conditions of K.A.R. 28-29-330 for determining the applicability of gas monitoring requirements shall conduct gas monitoring according to the following requirements:

(a) Gas monitoring requirements. The owner or operator shall perform the following:

(1) Conduct gas monitoring during the active life of the facility and during the closure and postclosure periods;

(2) monitor each of the following:

(A) The gas concentrations to which on-site personnel are exposed;

(B) the concentration of gases at each gas monitoring probe; and

(C) the concentration of gases in each building on the facility property;

(3) sample for the following gases:

(A) Methane;

(B) hydrogen sulfide; and

(C) any other gas as required by the secretary, based on the following criteria:

(i) The potential for the gas to be generated at the C&D landfill; and

(ii) the toxicity or explosive potential of the gas; and

(4) conduct sampling at least once every six months, except as follows:

(A) Less frequent sampling may be approved by the secretary if site-specific data demonstrate that less frequent sampling will not increase the potential for any adverse impact on human health or safety; and

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(B) more frequent sampling may be required by the secretary if site-specific data, including the proximity of human receptors to the C&D landfill and meteorological conditions, demonstrate that more frequent sampling is necessary to decrease the potential for any adverse impact on human health or safety.

(b) Recordkeeping and reporting. The owner or operator shall maintain records and submit reports according to the following requirements:

(1) Maintain all analytical results of gas monitoring in the facility's operating record; and
(2) on or before March 1 of each year, submit a report to the department that meets the following requirements:

- (A) Covers the preceding calendar year;
 - (B) is in a format approved by the secretary;
 - (C) contains a summary of the analytical results of gas monitoring, including a certification by the owner or operator of the C&D landfill that the reported results have been reviewed and determined to be accurate;
 - (D) compares gas concentrations to the levels specified in K.A.R. 28-29-336;
 - (E) assesses all changes on-site and within ¼ mile of the facility boundary that could increase the potential for an adverse impact on human health or safety, including construction of buildings;
 - (F) describes all evidence of any adverse impact on human health or safety or the environment, including distressed vegetation; and
 - (G) if necessary, proposes changes to the gas monitoring system.
- (c) Gas monitoring operations plan. The owner or operator shall develop a gas

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monitoring operations plan, which shall become part of the facility operations plan upon approval by the secretary. The gas monitoring operations plan shall include the following information:

- (1) The locations that will be sampled;
- (2) the frequency of sampling;
- (3) the constituents that will be monitored;
- (4) the sampling methods that will be used at the gas monitoring probes;
- (5) the sampling methods that will be used at locations other than gas monitoring probes;
- (6) the methods that will be used to measure the concentrations of gas to which on-site personnel are exposed; and

(7) the action level, at each location, for each gas that is being monitored in addition to methane and hydrogen sulfide. For the purpose of this regulation, "action level" shall mean the concentration of gas that, if exceeded, requires the owner or operator of the C&D landfill to comply with the requirements of K.A.R. 28-29-336. (Authorized by and implementing K.S.A. 65-3406; effective P-_____.)

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28-29-336. Control of hazardous and explosive gases at C&D landfills; response, assessment monitoring, and corrective action. For purposes of this regulation, "lower explosive limit" or "LEL" shall mean the lowest percent volume of a mixture of explosive gases in air that will propagate a flame at 25°C and atmospheric pressure. (a) Action levels. The owner or operator of each C&D landfill shall comply with requirements of subsection (b) if gas concentrations exceed any of the following levels:

(1) For methane, either of the following:

(A) 25% of the LEL (1.25% by volume) in any building on the facility property; or

(B) 100% of the LEL (5% by volume) in any gas monitoring probe at the facility property boundary;

(2) for hydrogen sulfide, any of the following:

(A) 1 ppm for on-site personnel;

(B) 1 ppm in any gas monitoring probe at the facility property boundary; or

(C) 0.1 ppm in the ambient air at the facility boundary, based on a 15-minute time-weighted average measured when the wind speed is less than 15 mph; or

(3) for each gas being monitored in addition to methane and hydrogen sulfide, the action level specified in the gas monitoring operations plan.

(b) Response and assessment monitoring. If the concentration of any gas exceeds the levels specified in subsection (a), the owner or operator shall perform the following actions:

(1) Immediately assess the potential danger posed to human health and safety;

(2) immediately take all the steps necessary to ensure protection of human health and safety;

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(3) immediately notify the local government's public health, environment, and emergency management offices;

(4) notify the department within one business day and submit a written report to the department within one week;

(5) within five business days, place the following information in the facility operating record:

(A) The levels of gas that were detected; and

(B) a description of the steps taken to protect human health and safety; and

(6) for each location at which any gas concentration level specified in subsection (a) was exceeded, sample that location and all gas monitoring locations within 1,500 feet of that location at least once each day for at least two weeks after the first day the limit was exceeded and comply with the following:

(A) If all gas concentrations are below the levels specified in subsection (a) during the two-week sampling period, the owner or operator may return to the sampling schedule specified in the gas monitoring operations plan;

(B) if the gas concentration at any monitoring location or combination of monitoring locations exceeds any of the levels specified in subsection (a) for seven or more days during the two-week sampling period, the owner or operator shall take corrective action according to the requirements of subsection (c);

(C) if the gas concentration at any monitoring location exceeds any of the levels specified

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in subsection (a) on any day during the two-week sampling period, the owner or operator shall continue daily sampling for two weeks after the last day the limit was exceeded; and

(D) if sampling has continued for one month and the frequency of the exceedances is not decreasing, the owner or operator shall take corrective action according to the requirements of subsection (c).

(c) Corrective action. If corrective action is required, the owner or operator shall perform the following actions:

(1) Develop and submit to the department a corrective action plan, including provisions for the installation of an active or passive gas management system. The owner or operator shall submit the plan within 60 calendar days of the date the conditions requiring corrective action were met; and

(2) upon approval of the secretary, implement the corrective action plan. (Authorized by and implementing K.S.A. 65-3406; effective P-_____.)

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